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ABSTRACT

This paper describes an intensive educational program for mother-infant pairs from disadvantaged populations. The program had three aims: (1) to help the mothers understand that the way they interact with their infants makes an important difference in the child's development; (2) to encourage and teach mothers to respond to infant vocalizing and behavioral indicators of interest and stress; and (3) to teach the mothers a sequence of child development skills which enables them to choose appropriately stimulating material and games. The experiment involved 48 mother-child pairs. Half of the mothers participated in the educational programs; adolescent mothers attended the classes separately from the older mothers. The remaining 24 mothers received home visits from a nurse or social worker who discussed general problems but offered no specific instructions on skill development. The development of all of the infants was measured with the Uzgiris-Hunt Infant Ordinal Scales of Psychological Development and the Bayley Scales of Infant Development. Preliminary results of the experiment are given and some implications of these results and certain program procedures are discussed. (SDH)

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MOTHER TRAINING AS A MEANS OF ACCELERATING CHILDHOOD DEVELOPMENT IN A HIGH RISK POPULATION

by

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The feasibility of carrying out intervention programs for the socially disadvantaged, to include infants and their parents has been explored by a number of researchers[1-6]. All these programs featured weekly home visitors, began sometime during the first two years of life and continued for one to two years. Repeated testing of infants during and immediately following intervention resulted in varying gains in I.Q., language, motor and perceptual development. However, positive results are less conclusive in follow-up testing or in interpretation of standardized test scores.

Lewis and McGurk[7] argue that infant intelligence scales are unsuitable instruments for assessing the effects of specific intervention procedures because infant intelligence is not a general, unitary trait, but is a composite of skills and abilities that are not necessarily covariant. Heber[8] and White[9] go a step further and imply that it is a waste of resourses to carry out enrichment programs during the first year of life.

Since the feasibility of beginning intervention during the first year has not been clearly demonstrated, we undertook a study to determine whether an intensive educational program for adolescent mother-infant pairs could be successful in a pediatric setting of a large medical center. Our preliminary results will be presented here.

Utilizing an infant curriculum[10] and mothers' training program model[11,12] developed and tested at the University of Illinois and parent child centers in Illinois and Georgia, we have initiated a research project which is service-oriented and preventive in nature. It begins at birth, includes extensive medical and nutritional services and features improvement in family style through mother competence. Special attention is given to the feasibility of applying a proven intervention program to the multiple problems of the disadvantaged adolescent mother.

SLIDE 1

The experimental design includes 48 mother-infant pairs who were recruited on the post-partum unit of Cincinnati General Hospital during January and February 1973. The 24 mother-infant pairs assigned to experimental class groups were recruited first in order to ensure their commitment to attend weekly classes. Almost every mother who met our criteria for selection agreed to participate, assuring a random sample of the delivery population. Infants were first-born, gestationally mature, and had five-minute Apgars over 7. Groups were matched for race and sex -- nine blacks and three Appalachian whites in each of the four groups. All were socially disadvantaged as defined by social class status.

Weekly classes for the 24 mother-infant pairs assigned to the experimental group began February 1 and have thus far continued for a total of 45 weeks. Young and old mother-

infant pairs meet separately. Classes are arranged to coincide with evening pediatric clinics at Cincinnati General Hospital so doctors, nurses, and social workers are available for consultation. Mothers bring their infants to class, and the format of the mothers' training program is followed. Goals are as follows: (1) mothers are led to understand that how they interact with their infants now will make an important difference in later life; (2) they are encouraged to respond to their infants' vocalizing and to their behavioral indicators of interest and stress as they interact with play materials; (3) they are taught a sequence of infant development skills which enables them to choose appropriate material that stimulate their child's development.

SLIDE II

The instructor demonstrates to the mothers manipulative toys and materials as she plays with the infants in an enclosed 12' circular area. She uses a variety of standard educational techniques. She demonstrates appropriate mothering behavior. For instance, the baby vocalizes. The instructor repeats the baby's vocal pattern. She repeats the demonstration in response to the infant and says, "See -- see what he's doing". "Now, you do it". As the mother tries and repeats the instructor's demonstration, the instructor praises or reinforces her behavior. On occasion, the group may exert pressure to censure a mother's behavior with her child. The instructor may sometimes confront or

censure an individual mother; for example, "This is your baby and he needs and wants you now". Finally, many incentives are offered to ensure regular attendance and participation. Transportation to and from class is provided, program toys are given to the mothers, young mothers earn high school credit, babies are regularly photographed.

The home visiting control groups offer an interested resource person -- nurse or social worker -- and toys like those given to mothers in class groups but no instruction. Mother-infant pairs are visited at home once a month, infant development is assessed and problems related to health and nutrition are discussed. Favorable response from the participating mothers has been observed regularly and we are convinced that the service aspect has had a positive influence on the infant's performance. Therefore, in the studies presented here there is no true untreated control group.

The Uzgiris-Hunt Infant Ordinal Scales of Psychological Development is the testing instrument we have chosen to measure the specific effects of intervention on the infants. These Piagetian derived ordinal scales provide an assessment of sensorimotor development during the first 18 months of life, a period which coincides with the scheduled duration of our study. All of the infants are tested monthly with these scales. One advantage of using these scales is that our data on when infants pass ordinal landmarks of development will be compared with other population groups -- institutionalized infants in Teheran and Greece, middle-class

infants, and infants in other intervention studies. These comparisons will be useful in determining the strengths and weaknesses of widely different child-rearing practices and in better defining what a stimulating environment should include.

SLIDE III

This slide presents graphically Uzgiris-Hunt mean composite testing scores for all four groups of infants which were collected. Six-month testing results include total sample of 46 infants as we lost one white mother-infant pair in each of the young mothers' treatment groups. Subsequent attrition of two additional white mother-infant pairs in young mothers' class treatment group necessitated only including testing data on black population or a total sample of 36 infants at 12 months.

Infants in class groups performed significantly better ($p < .01$) than home visited infants with treatment effect occuring in comparisons made between young mothers' treatment groups.

SLIDE IV

Although previous studies have not reported any significant differences in infant performance as measured by standardized tests in socially disadvantaged populations at 12 months of age, we nonetheless decided to administer the Bayley Scales of Infant Development to our infants. All

testing was completed by the same certified Bayley testor who did not know the treatment group status of any of the infants. In this slide, differences are reflected in the performance scores of infants in the young mother treatment groups. Infants of young mother in the home visited group had a mean mental score of 79, which was significantly less ($p<.05$) than the mean score of 99 obtained by those who attended classes. This treatment effect was not apparent in the older groups.

SLIDE V

Mean motor scores on the Bayley Scales are shown in this slide. Infants of young mothers who attended classes performed significantly better ($p<.05$) than those in the home visiting group. Motor scores of these infants were significantly better ($p<.01$) than those of older mothers who also attended classes.

SLIDE VI

Sociological variables, specific mother-infant interactions and repeated testing results of infants on the Uzgiris-Hunt Infant Ordinal Scales and with the Bayley Scales at two years of age and later testing of our selected no treatment control group will have to be studied carefully before we can understand the full impact of beginning intervention at birth. Our infant testing data at 12 months, however, suggests that infants of adolescent mothers

begin to fall behind very early in life, or, infants of adolescent mothers are in jeopardy. Contrary to our earlier predictions, a mother-infant group approach is more successfull with adolescent mothers. The mother surrogate grandmother or the casual babysitting arrangements made while young mothers return to school need not be deleterious for the infant if opportunities are created to foster "mothering" techniques, building on the comraderie of association with their peers in a group approach . More young mothers than old were receptive to attending weekly classes when recruitment occurred in the postpartum period, suggesting that educational intervention for adolescent mother-infant pairs may be successful if begun at birth.

Based on previous difficulties in recruiting for programs beginning at 1-2 years of age, the postpartum period appears to be a more optimal recruitment time. And finally, it seems apparent that man/hours involved in a group program are less and therefore the group approach is more efficient and less expensive.

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I

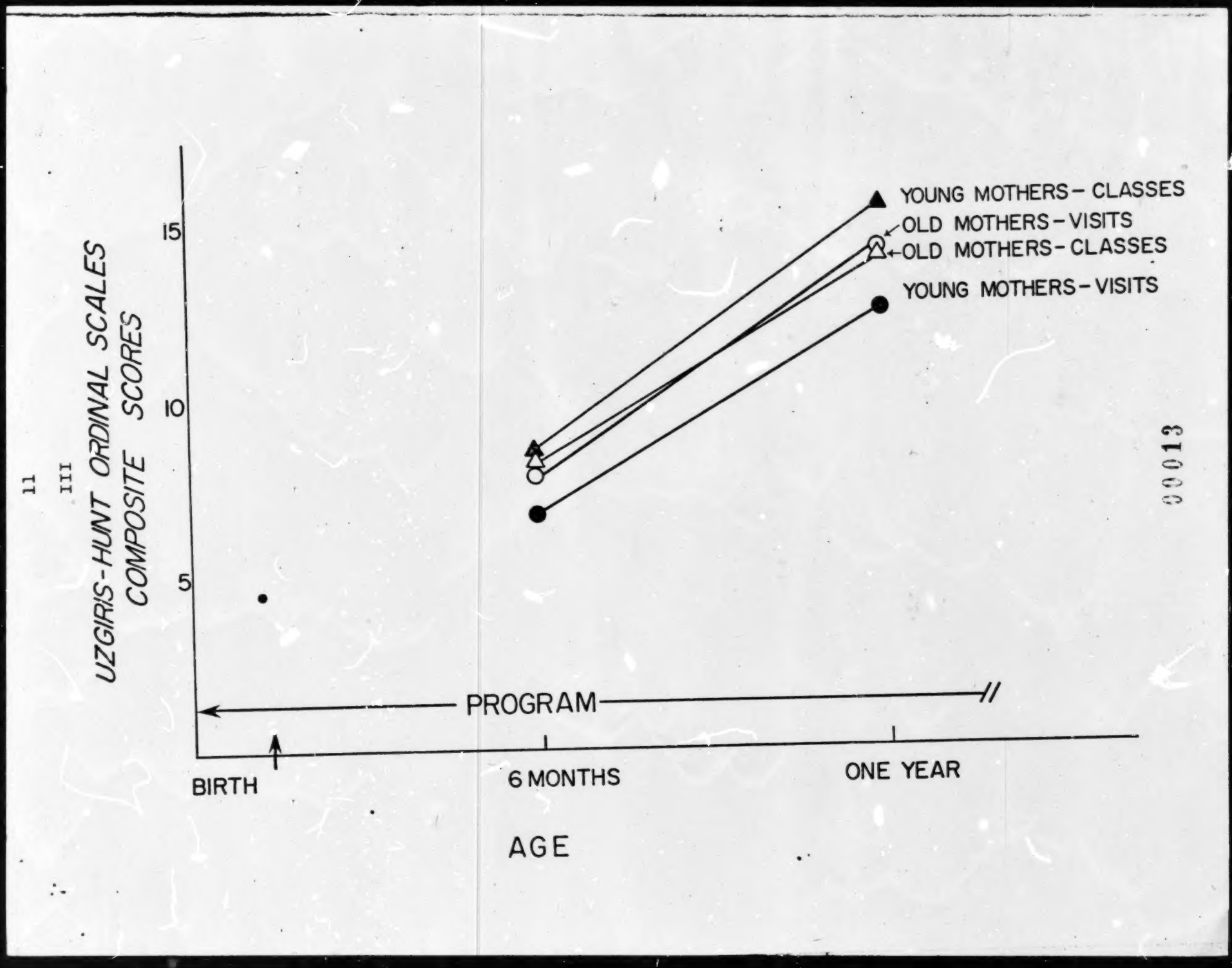
TREATMENT GROUPS

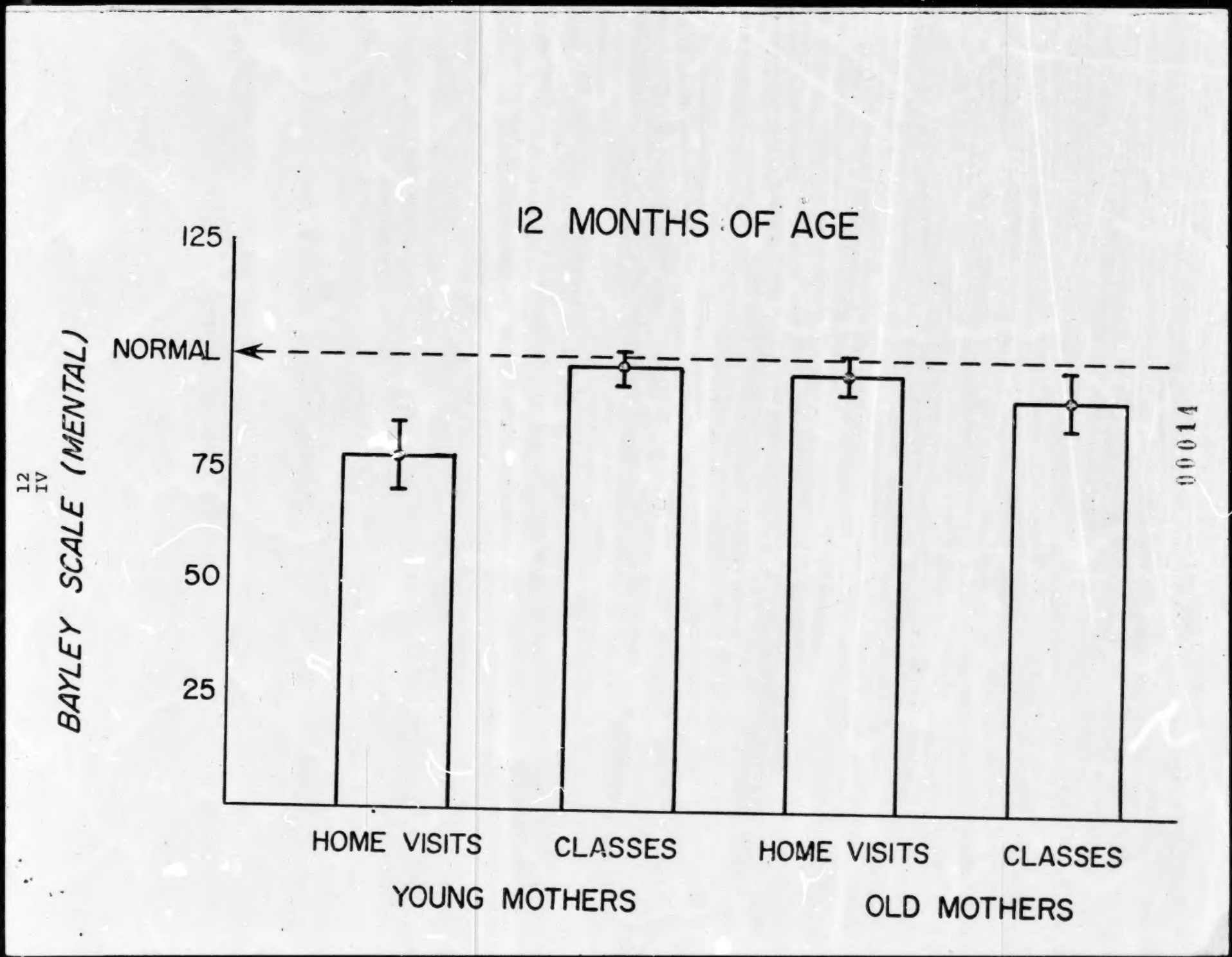
SUBJECT GROUPS	CLASSES: Mother Training Program, Weekly Classes	VISITS: Monthly Supportive Home Visits
Old Mothers: 18 years or older, Mature infants	12 mothers and infants	12
Young Mothers: 16 years or younger, mature infants	12	12

II

TECHNIQUES

1. Demonstration
2. Repetition
3. Reinforcement
4. Group pressure
5. Confrontation
6. Incentives


UZGIRIS-HUNT ORDINAL SCALES
COMPOSITE SCORES
15
10
5
YOUNG MOTHERS – CLASSES
OLD MOTHERS – VISITS
OLD MOTHERS – CLASSES
YOUNG MOTHERS – VISITS
PROGRAM
BIRTH
6 MONTHS
ONE YEAR
AGE


12 MONTHS OF AGE
125
NORMAL
75
50
25
BAYLEY SCALE (MENTAL)
12
IV
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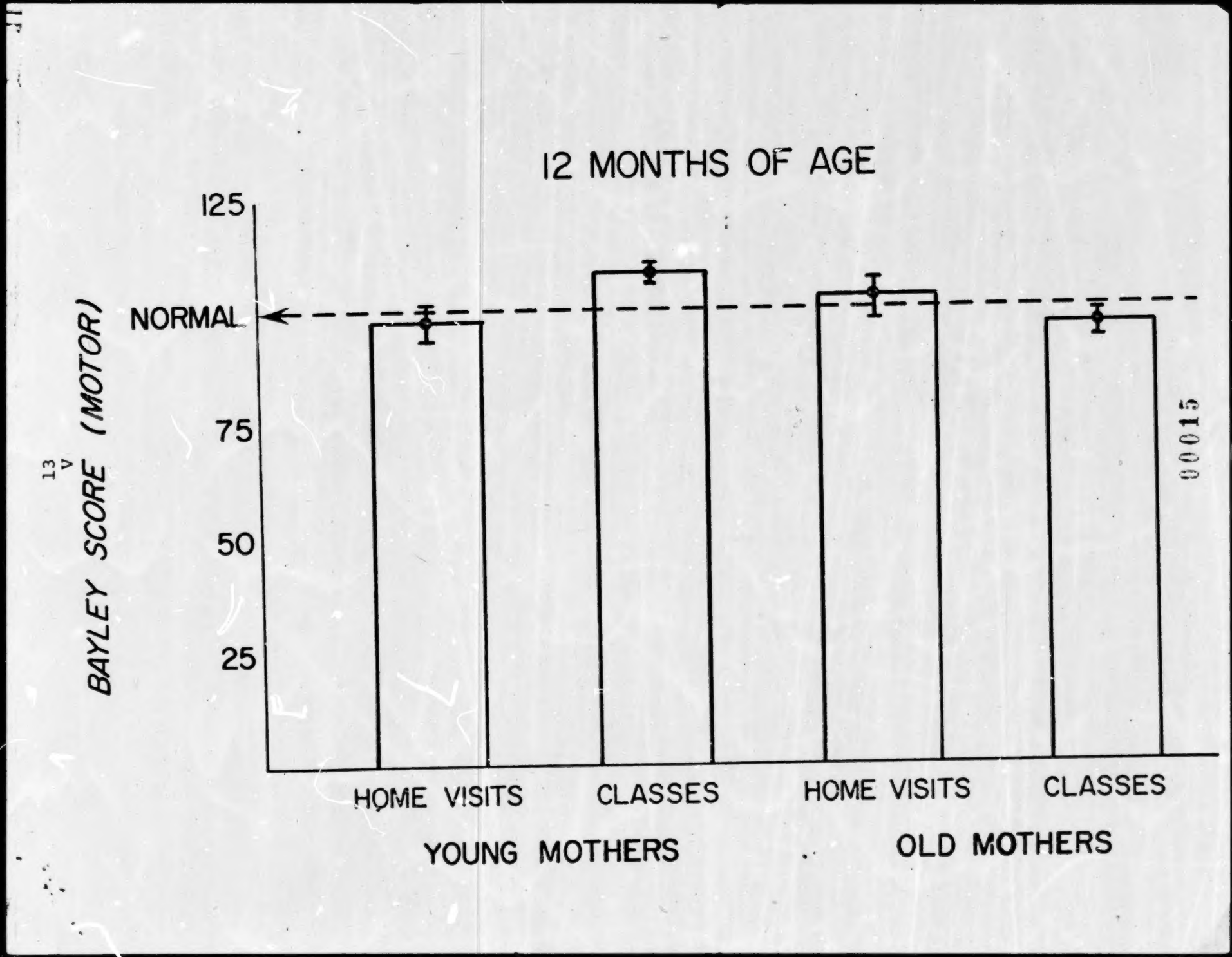
HOME VISITS
CLASSES
HOME VISITS
CLASSES
YOUNG MOTHERS
OLD MOTHERS


12 MONTHS OF AGE
125
NORMAL
75
50
25
BAYLEY SCORE (MOTOR)
13
V
HOME VISITS
CLASSES
HOME VISITS
CLASSES
YOUNG MOTHERS
OLD MOTHERS
00015

VI

CONCLUSIONS

1. Infants of adolescent mothers are in jeopardy.
2. Mother-infant group approach is more successful with adolescent mothers.
3. Educational intervention for adolescent mother-infant pairs should begin at birth.
4. Postpartum period is optimal recruitment time.
5. Cost analysis of intervention favors group approach.